GIANT

By Chris Grondahl

When the Missouri River was dammed about a half-century ago, the natural rise and fall of floodwaters cottonwood trees demand was lost, changing the makeup of stately natives lining the river's banks.

Cottonwoods require snowmelt-fueled flooding for success, as high waters of spring scour lowlands, depositing fine, silty soil on the floodplain. As the waters later retreat to the Missouri's main channel, mature trees release small seeds spread by wind to newly-formed sand bars and exposed shorelines.

Because cottonwood seeds have a lifespan of less than two weeks, the timing of these events is critical.

Today, little naturally occurring high water reaches the floodplain. Areas once scoured by floodwaters and seeded with cottonwoods every spring have been protected by dams for 50 years. The large, old growth cottonwoods that are 50-200 years old are slowly dying, or being cleared for development.

Craig Bihrle

LOSS

What's left behind is an open canopy, or sunny areas perfect for invading grasses like brome to flourish, forming dense barriers that prevent natural tree growth. Cottonwoods, and other river bottom trees, also have to contend with exotics like Russian olive and saltcedar, which aggressively crowd out and threaten the natives.

But does the loss of these Missouri River giants matter? To some people, the cottonwoods don't matter and their loss is simply a

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Above: Kevin Kading, North Dakota Game and Fish Department private lands biologist, helps to replace just a fraction of what's been lost of the cottonwood forest along the Missouri River south of Mandan.

Left: A large chunk of Missouri River bottom land south of Mandan received a shot in the arm in the way of 1,000 young cottonwoods in 2003. Trees planted by State Game and Fish personnel and volunteers were showing promise of survival a year later.

footnote in history. Others argue, however, that their decline is significant as cottonwoods cater to the needs of a variety of wildlife species.

The Truckee River in Nevada provides some insight on the importance of cottonwoods. The Truckee is similar to the Missouri River in that its natural flows were pocketed by dams built for irrigation. As cottonwoods declined in the last century along this waterway, so did songbird populations. Following restoration work, not only did the water quality and fish production improve, songbird populations rebounded as well.

Cottonwoods along the Missouri River System in North Dakota provide habitat for not only large populations of songbirds and cavity-nesting species such as woodpeckers, raccoons and bats, but also white-tailed deer and wild turkeys. Great blue herons, bald eagles and turkey vultures nest and perch in the cottonwoods' upper stories, while ring-necked pheasants and other birds use young cottonwood stands for winter cover.

Cottonwoods also provide a canopy of shade that promotes beneficial underbrush such as wild grape, dogwood, willow and woodbine, rather than invasive grasses and noxious weeds such as leafy spurge. The variety of welcome vegetation found within a cottonwood forest creates root masses that aid in bank stabilization, thereby improving water quality.

Then again, maybe the aesthetic pleasure these riverbottom giants provide is reason enough to safeguard these natives.

Encouraging Cottonwoods

The North Dakota Game and Fish Department took advantage of the wet years of 1996-97 on one of its wildlife management areas near Williston to encourage cottonwood growth. According to Kent Luttschwager, Department wildlife resource management biologist, Williston, high water from spring snowmelt covered portions of the Lewis and Clark WMA that had been farmed. The exposed soil provided perfect conditions for thousands of new trees to get started. It wasn't easy, Luttschwager said, to explain to local farmers, who had been allowed to use the WMA, that it was going to be left to grow naturally, but admits it was well worth the effort.

Some other small cottonwood restoration efforts in the state have been accomplished by both state and federal agencies and private conservation groups. Game and Fish, with the help of volunteers, planted 1,000 trees each of the last two springs along the Missouri River south of Bismarck, while the U.S. Army Corps of Engineers and the Sierra Club have conducted similar efforts. Although these tree planting projects are small, it's apparent that without some planning and foresight, the Missouri River bottoms could one day be a sea of brome grass and Russian olive.

Paul Blumhardt, Bismarck city forester, received a grant from the U.S. Forest Service to conduct studies south of Bismarck to see how to best control brome grass and re-establish woody vegetation. Brome grass is every bit as bad as leafy spurge, he said, as far as being invasive and a deterrent to new tree growth. The study is only in its second year, but should provide some insight into the best methods to establish trees in a vanishing river bottom forest. The study is not focused on cottonwoods alone, since other large canopy species like oak and linden may provide a better solution. "When man put in the dams, he changed the composition of the river bottoms forever," Blumhardt said. "Man needs to work with this; otherwise we are going to lose it."

Some young cottonwoods planted in the Missouri River bottoms were showing promise this spring, first sporting buds, followed by tender leaves, said Bruce Renhowe, Department wildlife resource management biologist, Bismarck. But no matter how many trees are planted by volunteers, a return to the cottonwood forests of old just isn't going to happen. "The forest is changing and cottonwood trees are on their way out," he said. "We won't get back what we've lost."

To do that, Renhowe said, the Missouri needs to run unchecked, creating new cottonwood habitat. "If you take the dam out, the cottonwoods return," he said. "But we know that's not going to happen."

According to the 1994 Forest Inventory, cottonwoods have declined in North Dakota, mostly because of dams built for flood control, said Larry Kotchman, North Dakota Forest Service state forester, and cottonwood advocate. There have been some opportunities to help cottonwoods, he said, even though funding has been difficult to come by. But he would like nothing better than to get a sizeable amount of money for a Missouri River initiative to replace habitat.

The North Dakota Forest Service did receive $100,000 in 2003, under the Missouri River Forest Initiative, to provide money and expertise to landowners and local governments to enhance cottonwood and forest habitats and control invasive species such as brome grass and Russian olive.

Burning Hot

Like Blumhardt, Kotchman agrees that some new tree growth may come on its own, but some of those species are undesirable. And the ones that aren't, get caught in fires that spread over open grass expanses.

One of the problems with small efforts to rejuvenate cottonwood forests is the natural component called fire. Even though fire is typically healthy for most native systems, the river bottoms south of Bismarck are a little different situation. Since cottonwoods have been slowly dying – and not being replaced – over the last 50 years, there is more space open to sunlight, which fosters grass growth. Unlike a moist forest floor in the river bottom, grass burns much hotter and faster, killing any new trees that do get started. Fire also consumes dead trees, destroying nesting sites for woodland birds and further opening the canopy to sunlight, producing even more grass.

In the midst of all the talk about Lewis and Clark and the river corridor the explorers followed to and from the West Coast, it would seem appropriate that cottonwoods, one of the predominant and truly grand floras along their arduous route, receive attention. Places like Smith Grove Wildlife Management Area north of Bismarck, are few and far between. Smith Grove, managed by Game and Fish, is home to some of the largest cottonwoods in the state, and has been added to the American Forests National Register of Famous and Historic Trees. The oldest cottonwoods still rooted there were around when Lewis and Clark camped nearby.

It would be a shame, 50 years from now, that the only way a person could gaze into the canopy of a stand of cottonwood trees in the Missouri River bottoms would be to look at a picture in some history book.

CHRIS GRONDAHL is the Game and Fish Department's outreach supervisor.

Lewis and Clark Slept (Near) Here

Historians tell us that explorers Lewis and Clark camped near Smith Grove Wildlife Management Area on October 24, 1804 and August 17, 1806. The 23-acre WMA, located near Washburn, is owned and managed by the North Dakota Game and Fish Department.

Two centuries later, Smith Grove harbors the grandest stand of cottonwoods in the state. Nine of the cottonwoods are more than 250 years old, according to the North Dakota Forest Service, and have been accepted into the National Register of Historic Trees by American Forests. These nine giants are silent, but living witnesses of the Lewis and Clark Expedition.

Progeny of the Smith Grove giants are now spread across the state as the North Dakota Forest Service collected seeds from the trees and propagated 500 seedlings at the Towner State Nursery. One 5-foot tall "Lewis and Clark Historic Cottonwood" was offered free to each elementary school for planting. In addition, schools received certificates of authenticity, signs for mounting by the trees, information cards for each student and 12-page educational booklets with instructions for planting and caring for the trees.

Smith Grove is located 1 1/2 miles south of Sanger. No hunting or camping is allowed.

These young cottonwoods germinated on a sand bar within the Missouri River near Williston, North Dakota. This part of the Missouri, just downstream of the confluence wiht the Yellowstone River, still periodically floods in spring, creating just the right conditions for new cottonwood growth. In the Bismarck area, however, few new cottonwoods are found growing in areas where old cottonwoods are starting to die off naturally.